



Results of the 2014 Birding Efforts at Lincoln Boyhood National Monument, Indiana

Birds are an important component of park ecosystems, as their high body temperature, rapid metabolism, and high ecological position in most food webs make them good indicators of the effects of local and regional changes in ecosystems. Moreover, birds have a tremendous following among the public and many parks provide information on the status and trends of birds through their interpretive programs.

We use trends in the composition and abundance of bird populations as long-term indicators of ecosystem integrity in the varied habitats of Lincoln Boyhood National Monument, Indiana. Ecosystem integrity is defined as the system's capability to support and maintain a balanced, integrated, adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of the natural habitat of the region (Karr and Dudley 1981).

Changes in the population size and community composition of birds on the park may reflect the effectiveness of management in restoring and maintaining the various vegetative communities at LIBO. Long-term trends in community composition and abundance of breeding bird populations provide one measure for assessing the ecological integrity and sustainability of these systems.

Methods:

For details on methods of bird surveys see Peitz et al. (2008).

- Bird communities were monitored at 8 points by Jennifer S. Thompson and Amy R. Steeples on May 1, 2014.
- All birds seen or heard in a 5-minute sampling period at each plot were recorded.
- Residency status of each species was established prior to analysis of the data (Mumford and Keller 1984).
- Using hot-spot-analysis in ArcGIS, areas of higher and lower species richness on the memorial were determined.
- Calculated number of individuals encountered per plot visit, and proportion of plots occupied by a species.

Summary of Findings:

- Fourteen bird species were observed during surveys. All fourteen species are resident or summer resident species thus considered breeding species at LIBO (Table 1).
- The most commonly occurring and widespread bird on LIBO was the Tufted Titmouse.
- No species recorded was a species of conservation concern for the Central Hardwoods Bird Conservation Region (Figure 1).
- Hot-spot-analysis showed concentrations of plots

with low species richness on the southern end of the Monument (Figure 2).

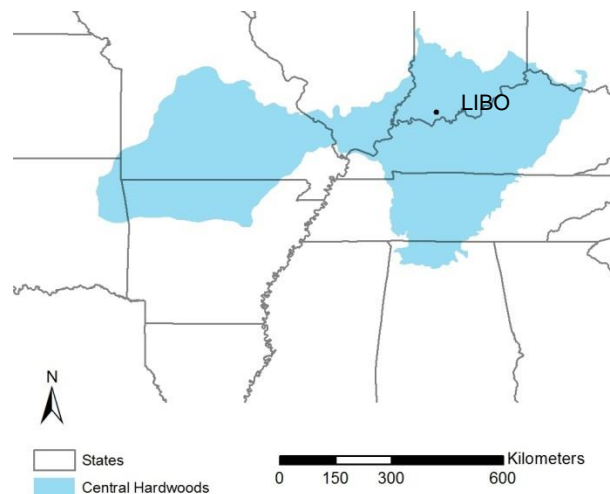


Figure 1. Central Hardwoods Bird Conservation Region.



Figure 2. Concentrations of plots with high (orange) to higher (red) and low (blue) to lower (dark blue) breeding bird species richness at Lincoln Boyhood National Monument, Indiana in 2014.

Table 1. Number of individuals encountered per plot visit, and proportion of plots out of eight occupied by breeding bird species at Lincoln Boyhood National Monument, Indiana during the 2014 bird surveys. Number of individuals per plot, and proportion of plots occupied includes all individuals recorded on plots during a 5-minute survey, including flyovers.

Common name	Residency ¹	Individuals / plot visit	Proportion of plots occupied
Blue Grosbeak*	SR	--	--
Blue Jay	R	0.25	0.25
Carolina Chickadee	R	0.25	0.25
Carolina Wren	R	0.25	0.25
Eastern Bluebird	SR	0.38	0.38
Eastern Towhee	R	0.25	0.25
Northern Cardinal	R	0.38	0.38
Ovenbird	SR	0.13	0.13
Pileated Woodpecker	R	0.13	0.13
Prothonotary Warbler*	SR	--	--
Red-bellied Woodpecker*	R	--	--
Red-tailed Hawk*	SR	--	--
Tufted Titmouse	R	0.75	0.63

Turkey Vulture R 0.25 0.25

¹ Residency status: R = year around resident; SR = summer resident (Mumford and Keller 1984).

* Breeding species recorded outside of 5-minute survey periods.

Bolded species names are those species considered of conservation concern for the Central Hardwoods Bird Conservation Region (U.S. Fish and Wildlife Service 2008).

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Citations:

Karr, J. R., and D. R. Dudley. 1981. Ecological perspective on water quality goals. *Environmental Management* 5:55-68.

Mumford, R.E. and C.E. Keller. 1984. *The Birds of Indiana*. Indiana University Press, Bloomington. 376 pp.

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U.S. Fish and Wildlife Service. 2008. *Birds of Conservation Concern 2008*. United States Department of Interior, Fish and Wildlife Service, Division of Migratory Bird Management, Arlington, Virginia. 85 pp. [Online version available at <http://www.fws.gov/migratorybirds/>].